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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,468	09/26/2003	Eric A. Bansbach	6978-250/COA	9724

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HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

NGUYEN, THU V

ART UNIT PAPER NUMBER

3661

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/672,468

Applicant(s)

BANSBACH ET AL.

Examiner

Thu Nguyen

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The amendment filed on December 2, 2004 has been entered. By this amendment, claims 9-16 have been canceled, and claims 1-8, 17-21 are now pending in the application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dominke et al (W) 02/32742) (Using US publication US 2003/0114969 as a translation) in view of Ichimaru (US 5,924,703) .

As per claim 17, Dominke teaches providing output force generated by the steering actuator assembly, the method comprises: modifying digital control signal by providing blocks of control signal pulses U_v , g_{H11} (fig.11a) (para 0068) consisting of at least one nulled block (fig.11a); and providing the output force generated by the actuator in response to the control signals (para 0042; 0058; 0131, 0143). Dominke does not teach modifying the digital control signal by dithering the signal. However, Ichimaru teaches a method for generating control signal in which a block of the control signal is nulled by dithering process (fig.9; col.3, lines 31-36). It would have been obvious to a person of ordinary skill in the art at the time the invention was

made to produce the control signal of Dominke using dithering method of Ichimaru in order to facilitate controlling and adjusting frequency and duty cycle of the control signal.

As per claim 18-21, using output force from the actuator to move the clutch actuation mechanism, causing dip in the control signal as a result of elapse of supporting power, the amplitude of the dip is determined by the nulled period in which the supported power is stopped, and the change in the output force generated by the actuator effect movement of the actuation mechanism would have been both well known and natural phenomenon.

Allowable Subject Matter

3. Claims 1-8 are allowed over prior arts.
4. The following is a statement of reasons for the indication of allowable subject matter:

Prior arts of record does not teach a method for regulating engagement of a torque transfer device by superimposing a dithering signal onto a digital control signal in which each successive block of nulled pulses has at least the same number of nulled pulses as the block the immediately precedes the succeeding block, and such that each successive block of nulled pulses has an equal or less number of nulled pulses that the block that immediately precedes the succeeding block; the dithered control signal is used to regulate engagement of the torque transfer device.

Response to Arguments

5. Applicant's arguments filed December 2, 2004 on claims 17-21 have been fully considered but they are not persuasive.


In response to applicant's argument on page 11, second paragraph through page 12, lines 1-3, applicant fails to explain with supported evidences for the assertion that Dominke does not teach the digital control signal with multiple pulses; modifying the digital control signal by nulling blocks of control signal pulses, and varying output force generated by an actuator. Dominke does teach digital control signals U_v , U_H , g_{RV} which are pulse width modulating signals (PWM) (para 0068). Since the digital control signals U_v , U_H , g_{RV} , etc. affect the output force of the actuators LM, LRM (para 0068), the digital control signals obviously affect varying of output force of the actuators. Dominke, further, teaches control signals with pulse train block having null signals in between (fig. 11a), Dominke just does not explicitly teach how to null pulses. Ichimaru, on the other hand, suggests performing dithering on PWM digital control signals (obtained by switching means) (col.3, lines 40-55; col.6, lines 43-45). Further, since Ichimaru teaches obtaining signals with appropriate duty ratio using a switching means for switching power on and off (col.3, lines 40-56), Ichimaru obviously includes teaching nulling the signal when the transistor is switched off. It would have been obvious to apply the dithering method of Ichimaru to dither the digital control signals to obtain control signals U_v , U_H , g_{RV} , g_{H11} with nulled pulses between blocks of pulses to control the appropriate duty ratio of the output signal to be applied to the actuators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on T-F (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 18, 2005


THU V. NGUYEN
PRIMARY EXAMINER